
The Effect of Relevant Emotional Content on Performance and Learning in Programed Instruction

Author(s): Lawrence E. Schlesinger, Edward H. Fischer and Stanley L. Cohen

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and Cohen, Stanley L.
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Purpose To determine the conditions under which the arousal of fear or anxiety is effective or ineffective in motivating learning in programed instruction.

Procedure Two experiments were conducted. Experiment I (emotional content study) determined whether the inclusion of relevant emotional content in a series of linear constructed-response self-instruction manuals on driving would affect the learning and retention of the material. A 5 x 3 factorial design was employed with five intensity conditions and three orders. The intensity variable consisted of six emotionally toned stories depicting drivers in potentially dangerous driving conditions followed by program frames which required the student to respond to the content of the stories. The five conditions were: (1) Low-Level Intensity, characterized by nothing of any consequence happening other than the driver's realizing he had committed an error; (2) Moderate-Level Intensity, featuring an accident with some property damage or arrest but no personal injury; (3) High-Level Intensity, with an accident (described in vivid terms) in which someone was fatally injured; (4) Mixed-Level Intensity, combining two of each level; and (5) Control, with no emotional inserts. The three orders of presentation were: (1) After, the inserts following the manual chapters; (2) Before, the inserts preceding the manual chapters; and (3) Mixed. Subjects took a 20-item Driver Knowledge Test and the Taylor Manifest Anxiety Test prior to the program. A 145-item final examination was taken immediately following four 55-minute periods of instruction and was readministered one month later to test retention. All but the control groups rated the subjective intensities of the excerpts on semantic differential scales. Experiment II attempted to cross-validate and extend the strongest findings in the first experiment, but using three instead of six stories. The design had two intensity levels (High and Low), two orders of placement (Before and After), and a Control group receiving no emotional materials. The 366 high school subjects were randomly assigned to the treatment groups. Testing was similar to the first experiment with a more intensive study of emotional responses and acceptance of the material.

Results and Conclusions (1) The first experiment indicated that an emotional stimulus *following* the relevant material is more likely to be effective with respect to learning than one preceding it, particularly for male subjects and the delayed test on the emergency materials, but this was not confirmed in the second experiment. (2) In both experiments, the *high-threat* stimuli were seen as having greater *negative* effect than the low-threat stimuli, being greater for girls than for boys, in the emergency as compared to the routine driving procedures, and in the delayed compared to the immediate tests. (3) The *mixed order* of presentation conditions

were most effective for the *boys*, and the *mixed levels of intensity* conditions were most effective for the *girls*. (4) Estimates of "danger," which they would attribute to the driving situations described in the case studies, were differentially influenced by the exposure received, the high-threat group rating them as most dangerous and the control group as least dangerous. (5) The hypothesis derived from the literature—that manifest anxiety might operate as a secondary drive to influence learning—was tested with no significant results. Results showed differences in the amount of retention by subjects varying in *physical* anxiety in the low-threat and control groups. In the control group, the low-physical anxiety subjects had better retention of the driving information. In the mild-fear situation, the more anxious subjects performed more successfully, probably because the emotional tensions they felt more closely matched the situations described. (6) It was concluded that two conditions would facilitate learning: (a) Placing the emotional content *before* the learning material would emphasize the attention-arousing aspects of the learning experience; (b) Placing the emotional insert *after* the relevant learning material would provide a symbolic reinforcement of the responses made without introducing the potentially disturbing effects of emotional tension.

- Shemick, John M. *A Study of the Relative Effectiveness in Teaching a Manipulative Skill—A Multi-Media Teaching Program Versus Classroom Demonstration with Printed Instruction Sheets*. University Park: Department of Secondary Education, College of Education, Pennsylvania State University, October 15, 1964. 37 pp. (NDEA Title VII Project No. 1157.)
- Purpose** To determine the relative effectiveness of a program presented to learners in an audiovisual teaching machine for teaching metal spinning.
- Procedure** A series of 32 slides, with accompanying recorded audio instructions, was produced to teach a metal-spinning task (production of an aluminum bowl) to a class of 20 college teacher education industrial arts students. Subjects were randomly assigned to one of two methods: (1) Audiovisual, in which the subjects received instructions by means of the sound slide set presented by a rear projector with earphones, and (2) Demonstration on an actual lathe by the instructor with the aid of printed instruction sheets. Performance was measured by rating of quality of bowls produced, time consumed to perform the task, number of trials needed, and instances of instructor assistance required. Data were analyzed by analysis of variance.
- Results and Conclusions** (1) The demonstration-taught subjects needed significantly *less* time than the experimental audiovisual group to complete the task, but also required significantly more instances of teacher assistance. (2) Although the demonstration group tended to produce higher-quality work, the differences were not significant. (3) The experimenter concluded that the presentation lacked the action necessary for quickly learning a psychomotor task and that the program as prepared did not provide the overall orientation to the task.